WHAT IS CLAIMED IS:

1. An apparatus for loading fibers in a fiber suspension with calcium carbonate, comprising:

a housing having an inlet and an accept outlet;

a rotatable distribution member positioned within said housing;

a rotor and stator assembly positioned within said housing radially outside of said distribution member, including a rotor and stator in opposed relationship defining a gap there between, said gap being between approximately 3 mm and 75 mm;

a toothed ring interposed between said distribution member and said rotor and stator assembly, said toothed ring and said rotor and stator assembly defining a gas ring therebetween; and

a reactant gas supply fluidly coupled with said gas ring.

2. The fiber loading apparatus of claim 1, said gap being between approximately 3 mm and 20 mm.

3. The fiber loading apparatus of claim 2, said gap being between approximately 3 mm and 18 mm.

4. The fiber loading apparatus of claim 1, said gap being between approximately 5 mm and 18 mm.

5. A method for loading fibers in a fiber suspension with calcium carbonate, said method comprising steps of:

providing the fiber suspension with a fiber consistency of between about 2.5% and 60 %;

mixing with the fiber suspension at least one of calcium hydroxide and calcium oxide;

mixing reactant gas with the fiber suspension, the reactant gas including at least one of carbon dioxide, ozone and steam;

providing a rotor and stator assembling including a rotor and a stator defining a gap therebetween of between about 3 mm and 75 mm.;

passing the fiber suspension through the gap together with the at least one of calcium hydroxide and calcium oxide and the at least one of carbon dioxide, ozone and steam; and

rotating the rotor during said passing step and controlling the rotational speed of the rotor to provide a tangential velocity of between about 20 and 100 meters per second.

6. The method of claim 5, including controlling the rotational speed of the rotor to provide a tangential velocity of between about 40 and 60 meters per second.

7. The method of claim 5, including controlling the gap between the rotor and stator to between approximately 3 mm and 20 mm.

8. The method of claim 7, including controlling the rotational speed of the rotor to provide a tangential velocity of between about 40 and 60 meters per second.

9. The method of claim 5 including controlling the gap between the rotor and stator to between approximately 5 mm and 18 mm.

10. The method of claim 9, including controlling the rotational speed of the rotor to provide a tangential velocity of between about 40 and 60 meters per second.

11. The method of claim 5, including controlling the fiber suspension to a fiber consistency of between about 15% and 35%.

12. The method of claim 5, including mixing calcium hydroxide with the fiber suspension, and controlling the calcium hydroxide to a concentration of between about 0.1% and 60% dry weight before said step of mixing calcium hydroxide with the fiber suspension.

13. The method of claim 5, including mixing calcium hydroxide with the fiber suspension, and controlling the calcium hydroxide to a concentration of between about 2% and 40% dry weight before said step of mixing calcium hydroxide with the fiber suspension.

14. The method of claim 5, including controlling the fiber suspension to between about 6.0 and 10.0 pH before said step of mixing reactant gas with the fiber suspension.

15. The method of claim 5, including providing carbon dioxide as the reactant gas, and controlling the temperature of the carbon dioxide to between about 15° C and 120° C.

16. The method of claim 15, including controlling the pressure of the carbon dioxide to between about 0.1 and 6 bar.

17. The method of claim 5, including controlling the fiber suspension to a fiber consistency of between about 0.1% and 50% in the gap between the rotor and stator.

18. The method of claim 17, including controlling the rotational speed of the rotor to provide a tangential velocity of between about 40 and 60 meters per second.

19. The method of claim 17, including controlling the gap between the rotor and stator to between approximately 3 mm and 20 mm.

20. The method of claim 19, including controlling the rotational speed of the rotor to provide a tangential velocity of between about 40 and 60 meters per second.

21. The method of claim 5, including controlling the fiber suspension to a fiber consistency of between about 2.5% and 35% in the gap between the rotor and stator.

22. A method for loading fibers with calcium carbonate, comprising steps of:

providing a high consistency suspension of the fibers;

mixing with the high consistency suspension at least one of calcium hydroxide and calcium oxide and a reactant gas including at least one of carbon dioxide, ozone and steam;

passing the mixture through a gap between a rotor and stator while rotating the rotor; and

controlling the gap and rotational speed of the rotor to provide low shear treatment of the fibers.

23. The method of claim 22, including selectively determining a crystal type of the calcium carbonate formed by controlling at least one of a temperature and pressure of the reactant gas, a pH of the suspension, and an exposure time of the suspension to the reactant gas.